THE CITY OF REDMOND
FIRE DEPARTMENT - PREVENTION DIVISION

REDMOND FIRE DEPARTMENT
STANDPIPE FLOW TEST GUIDELINES

A functional flow test shall be performed at your expense to prove the standpipe design as required for normal system acceptance procedures found in Chapter 9 of NFPA 14.

I. REQUEST FOR TEST

The contractor shall request this test in writing at least 3 weeks in advance. The letter shall state whether or not the contractor will supply a private rated pumper or request the use of a Redmond Fire Department pumper and state that the appropriate party will accept the equipment expenses necessary to have the pumper and its crew of two fire department personnel at the test (see below) for a minimum of 2 hours. Your request must include an acceptable liability waiver for the Fire Department and must be submitted by the company that will be billed for the services.

The following are excerpts from Table F of Resolution No. 1073 (fees last updated on 02/01/2017):

Labor Costs per Hour Including Overhead	
Labor Category	Overtime Rate
Fire suppression and Other Services	$ 95.78

Vehicle Equipment Costs per Hour Including Overhead		
Vehicle	Active Duty Hourly Rate	Mileage Rate
Pumper Truck	$ 150.04	$ 0.85/mile

NOTIFICATION

The contractor shall also notify the following City of Redmond agencies and/or personnel of this test at least 3 weeks in advance via telephone.

A. City of Redmond Public Works, Engineering Construction Division (Site Inspection), (425) 556-2746.
B. City of Redmond Public Works, Water Utility Maintenance Division, (425) 556-2885.

Your notification must contain the date, start time, anticipated duration and estimated total gallons to be flowed during the test. These agencies/personnel may have additional requirements for water use reimbursement and test water runoff mitigation that must be met to conduct the test.

CANCELLATION POLICY: Redmond Fire Prevention Division must receive an advance notification of a cancellation of a standpipe flow test at least 48 working hours (2 business days) prior to the scheduled start of a test. This notification must be sent by email. Failure to provide sufficient notice will result in 2 hrs. of Fire Suppression and Other Services overtime rate being assessed for 2 suppression personnel (4 hrs. total). The email address to direct this cancellation notification is FireDevelopmentServices@redmond.gov. Business days are defined as being a non-holiday work day of a standard business week: Monday-Friday, 8 a.m.-5 p.m.

II. EQUIPMENT

The contractor shall provide the following equipment to perform the flow test:

A. Communications equipment for personnel at each gauge.
B. Enough personnel to staff each gauge and to move equipment as necessary
C. Liquid filled gauges (0–300 psi)
D. In-line flow meter(s) and Hose Monsters™ or other approved flow devices
E. Hose and solid bore nozzles with verifiable coefficient. Nozzle size shall be 1-1/8" to obtain pitot readings at Hose Monsters™ to verify flow of at least 250 gpm.

III. SET-UP / PREPARATION

The contractor shall take the following steps prior to the arrival of the fire inspector, as depicted in Figure 1:

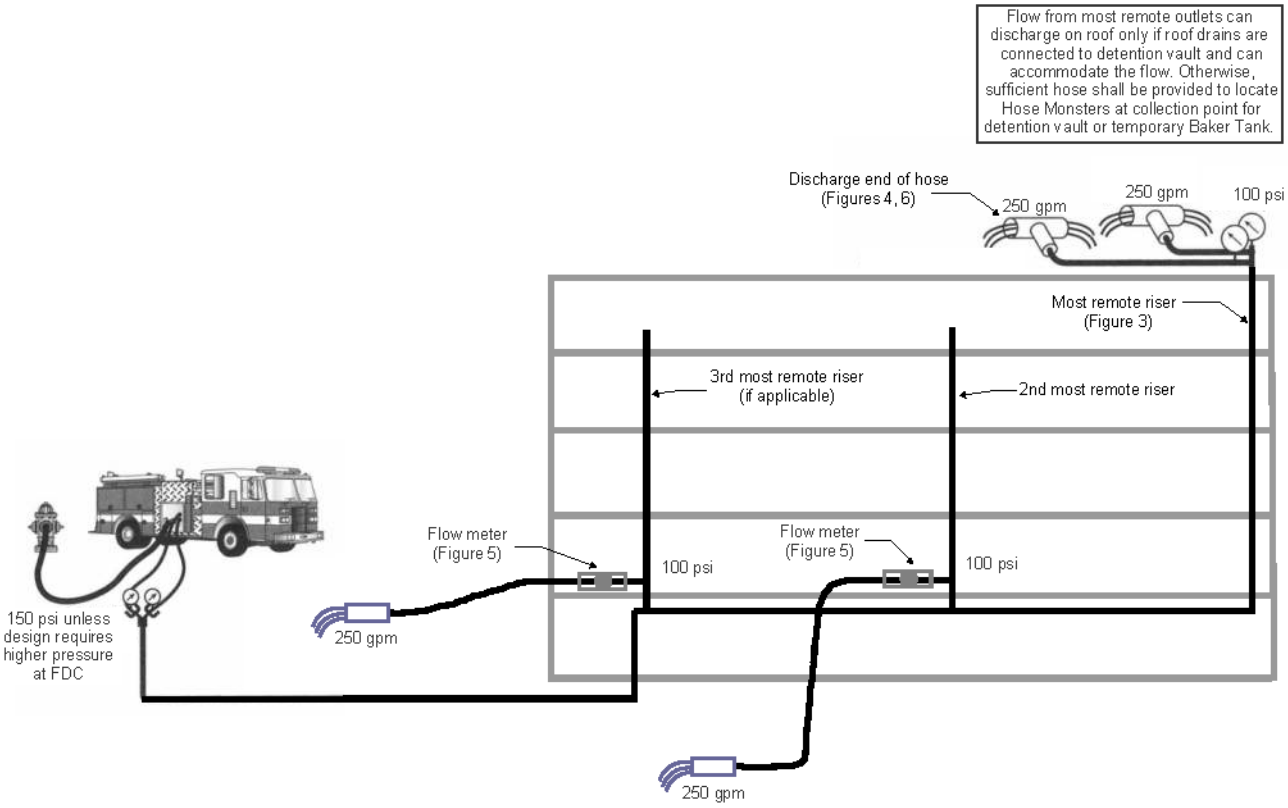

Figure 1: Setup for a standpipe flow test[1]

[1] Modified with permission from NFPA 14-2016, *Installation of Standpipe and Hose Systems*, Copyright © 2015, National Fire Protection Association, Quincy, MA. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety which may be obtained through the NFPA website at www.nfpa.org.

A. The contractor shall provide pressure gauges at

1. The fire department connection
2. The base of system riser
3. The most remote standpipe outlet
4. Standpipe outlets to be flowed on second most remote and third most remote riser(s) (if applicable)

Figure 2: A fire department connection

B. Connect hose with Hose Monsters™ and 1-1/8” nozzle to the following standpipe outlets:

1. Most hydraulically remote standpipe outlet on most remote standpipe riser.

Figure 3: Hose connection to standpipe riser

Figure 4: Discharge end of hose connected to Hose Monsters™

2. Second most hydraulically remote standpipe outlet on most remote standpipe riser.

C. Connect hose with in-line flow meter to the following outlets:

Figure 5: Connection of hose with in-line flow meter to standpipe outlet

1. Any standpipe outlet on second most remote standpipe riser (if applicable).
2. Any standpipe outlet on third most remote standpipe riser (if applicable).

D. Perform mitigation required by other City of Redmond Departments/Divisions, such as water treatment and water impounding. Water that will be discharged into the City of Redmond stormwater system shall be treated with vitamin C tablets, then tested and verified for neutral pH before being discharged into the stormwater system. The stormwater detention facility, temporary water (Baker) tank, etc. shall have the capacity to hold a minimum of 10,000 gallons of water.

Extend sufficient hose to a discharge area that will drain into an approved detention area.

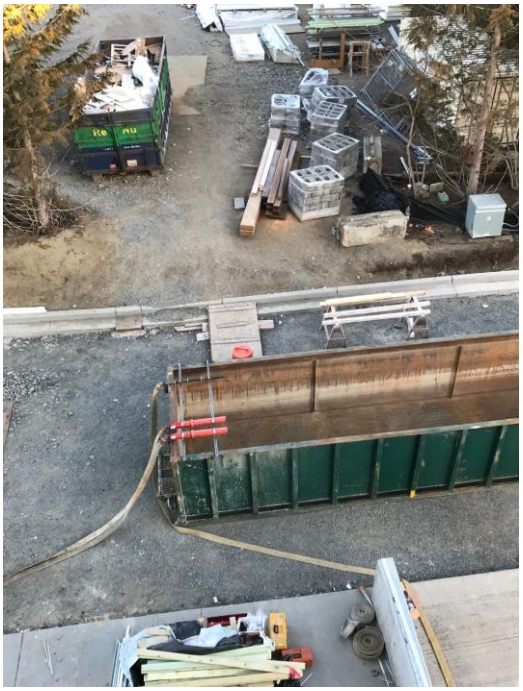

Figure 6: An example discharge area for a standpipe flow test

Figure 7: Drainage for the discharge area

V. FLOW PROCEDURE

A. The standpipe system shall be flushed of “dirty” water prior to the flow test. This water shall be flushed into the onsite oil/water separator, detention vault or temporary (Baker) tank and pumped out by a qualified company for disposal off-site. The “dirty” water shall not be discharged into the City of Redmond stormwater system. Discharge into a designated sewer may be allowed upon approved by a fire inspector. This “dirty” water discharge shall be witnessed by the fire inspector.

B. A private rated pumper or Redmond Fire Department pumper will be connected to the FDC. The pumper will supply water to the FDC at 150 psi or, if available, the designed input pressure. The engine pressure needed to provide the required pressure at the FDC shall be recorded.

C. The flow test will consist of the following:

1. The most remote and second most remote standpipe outlet on the most remote standpipe riser shall be opened fully.

2. The outlets on the second most remote standpipe riser and third most remote standpipe riser shall be opened until the in-line flow meter reads 250 gpm and the pressure at the outlet is 100 psi.

3. Once the previous step is completed the pressure at the most remote outlet should be a minimum of 100 psi. If not, increase input pressure at FDC until the pressure at the most remote outlet is 100 psi.

4. Once the pressure at the most remote standpipe outlet is 100 psi, obtain the pitot readings at the Hose Monsters™ connected to the most remote and second most remote standpipe outlets on the most remote standpipe riser. The pitot reading should be a minimum of 45 psi (with 1-1/8” tip) to have a corresponding flow of at least 250 gpm.

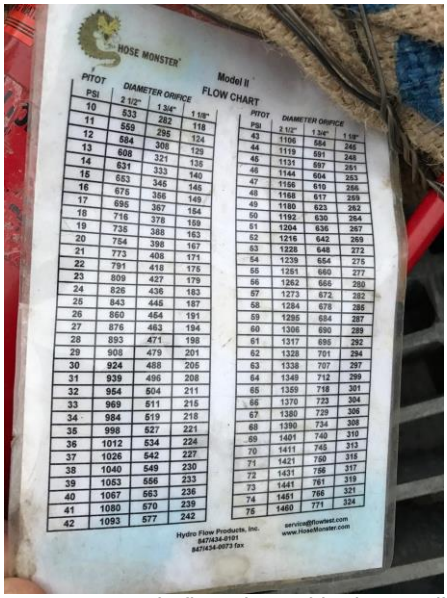

Figure 8: Example flow chart with pitot readings

C. If it is determined that the actual input pressure required at the FDC needs to be greater than 150 psi to meet the design criteria, a metal etched or similar sign shall be posted at the FDC to identify the required pressure at the FDC.

STANDPIPE FLOW TEST RECORD FORM

Project Name: _____ **Inspector:** _____

Site Address: _____ Date: _____

Contractor: _____

Pressure @ FDC: _____ **Engine Pressure:** _____

OUTLET	PRESSURE AT OUTLET	FLOW METER READING (GPM)	PITOT PRESSURE/GPM AT HOSE MONSTER™
Most Remote Outlet			
Second Most Remote Outlet			
Outlet on Second Most Remote Riser			
Outlet on Third Most Remote Riser			